

ABSTRACT OF THE DISCLOSURE

Methods, apparatus, and computer program products are disclosed for determining the upstream signal transmission quality of a cable modem.

Faulty cable modems, often having degrading RF transmitters, can cause

undesirable noise in the entire upstream spectrum of a cable plant. The most
damaging manifestation of this undesirable noise is in the form of a noise
spur; a sudden rise in an otherwise unarmful noise floor. A media access
control (MAC) unit in a CMTS assigns a normal time slot to a cable modem
being tested for its upstream transmission quality. It is during this normal

time slot that the cable modem can transmit data upstream. An FFT generator
or engine operating in conjunction with the CMTS is informed of this normal
time slot. A dummy time slot, not assigned to any cable modem, is created
and the FFT generator is informed of the dummy time slot. The FFT
generator, as well as the upstream receiver in the CMTS, is certain that no

data will be transmitted during this dummy time slot. A number of FFT
measurements of the upstream channel are generated during the normal time
slot and during the dummy time slot. FFT measurements of the upstream
spectrum taken during the normal time slot are compared to FFT
measurements taken during the dummy time slot. Through this comparison,
undesirable noise spurs, if any, can be detected in the upstream spectrum
caused by the cable modem being tested.